International Journal of Nursing
December 2022, Vol. 9, No. 2, pp. 32-47
ISSN 2373-7662 (Print) 2373-7670 (Online)

Published by American Research Institute for Policy Development
DOI: 10.15640/ijn.v9n2a5
URL: https://doi.org/DOI: 10.15640/ijn.v9n2a5

Effect of Self-Care Practices Sessions on Pre-eclamptic Women's Pregnancy and Labor Outcomes

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Abstract

Background: Pre-eclampsia is a life-threatening problem of pregnancy that has many maternal and fetal adverse effects. Improving women's practices for self-care is vital for improving pre-eclampsia management as well as pregnancy and labor outcomes. **Aim:** This study aimed to investigate the effect of self-care practices sessions on pre-eclamptic women's pregnancy and labor outcomes. **Design:** A quasi-experimental research design (one group pre & post-test). **Subjects:** A purposive sample of 96 pre-eclampsia-diagnosed pregnant women. **Setting:** The study was conducted at the Antenatal Outpatient Clinics in the New Obstetrics and Gynecology Hospital, the labor and delivery unit, and the inpatient obstetrics and gynecology departments at Mansoura University Hospital, Mansoura, Egypt. **Tools of data collection**: Three tools were used; Structured Interview Schedule, Pre-eclampsia Self-Care Practices Questionnaire, and Pregnancy and Labor Outcome Assessment Sheet. **Results**: The majority of the studied women had inadequate pre-eclampsia self-care practices pre-intervention which improved to adequate practices post-intervention for most of them with a highly statistically significant difference ($p < 0.001$). Also, the majority of the studied women had stable general condition during pregnancy without maternal complications before, during, and after labor, and most of their babies were live-birth and didn't have neonatal complications. **Conclusion:** The study concluded that implementing self-care practices sessions is effective in improving pre-eclamptic women's pregnancy and labor outcomes. **Recommendation:** Pre-eclampsia self-care practices sessions should be an integral part of the routine antenatal care provided to the diagnosed women to improve pregnancy and labor outcomes.

Keywords: *Labor Outcomes, Pre-eclampsia, Pregnancy Outcomes, Self-Care.*

Introduction

Pre-eclampsia is frequently defined as new-onset hypertension of more than 140/90 mm Hg, significant proteinuria of more than 300 mg in 24 hours, and other maternal organ failures that can occur at or after 20 weeks of pregnancy or postpartum **(Veiga, et al., 2021).** Globally, pre-eclampsia affects about 4.6% of pregnancies and its prevalence ranges from 1.8% to 16.7% in developing countries **(Sole, Staff, Räisänen & Laine, 2022; Mou, et al., 2021 and Yang, et al., 2021).** While in Egypt, the prevalence of pre-eclampsia is estimated to be 6% - 8% of all pregnancies and can be as high as 15% in referral centers such as university hospitals **(Ameen, Hany & Ali, 2022).**

Pre-eclampsia may begin as a mild form, but it can progress slowly or quickly into a severe form. After 20 weeks of pregnancy, mild pre-eclampsia is defined as an increase in blood pressure of more than or equal to 140/90 mm Hg with proteinuria of greater than or equal to 300 mg/24 h **(Coppage & Sibai, 2022).** While, severe pre-eclampsia is characterized by elevation of blood pressure greater than or equal to 160/110 mm Hg, thrombocytopenia, serum creatinine concentration greater than 1.1 mg/dL or greater than 2 times the baseline serum creatinine concentration, pulmonary edema, cerebral or visual disturbances and impaired liver functions **(Lisonkova, et al., 2021 and Coppage & Sibai, 2022).**

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Pre-eclampsia can negatively affect pregnancy and labor outcomes causing many maternal and/or neonatal complications (**Matyas, et al., 2022 and Ndwiga, et al., 2020).** Maternal complications of pre-eclampsia are eclampsia, placental abruption, postpartum hemorrhage, preterm delivery, DIC, HELLP syndrome, and maternal mortality. While, neonatal complications are intrauterine growth restriction, prematurity, asphyxia at birth, and intensive care unit admission **(Elagamy, Sabbour, Ali, Ahmed & Shahin, 2021 and Tinawi, 2020).** Most of these complications are due to maternal negligence or unawareness of self-care practices **(Rasouli, Pourheidari & Gardesh, 2019).**

Pre-eclampsia self-care practices sessions are a facilitating method for demonstrating the healthy practices that should be followed regularly by the affected women during pregnancy to improve pre-eclampsia management as well as pregnancy and labor outcomes **(Moulaei, Bahaadinbeigy, Ghaffaripour & Ghaemi, 2021).** These healthy practices include daily measuring of blood pressure, checking body weight and protein in the urine, taking adequate rest, practicing physical activities, following the recommended diet and medications, and monitoring fetal movement, etc **(Afefy & Kamel, 2019).**

Significance of the study

Pre-eclampsia is not only the most frequent obstetrical complication of pregnancy, but it is also one of the three leading causes of maternal morbidity and mortality worldwide, especially in low-income and middle-income countries **(Sole, et al., 2022).** Globally, it is annually associated with approximately 46,000 maternal deaths and approximately 500,000 fetal and neonatal deaths **(Longo, 2022 and Gholami, et al., 2022).** While maternal deaths are estimated to be 16% in high-income countries and 9%- 26% in low-income countries **(Karrar & Hong, 2022 and Haile, et al., 2021).** This may be because the majority of women with pre-eclampsia worldwide have poor self-care practices leading to poor hypertension control and many adverse outcomes **(Gholami, et al., 2022).**

The most effective strategy working to enhance pregnancy and labor outcomes for women with pre-eclampsia is to empower them to participate actively daily in activities that maintain and enhance health and well-being which are known as self-care practices **(Uğurlu, Yavan & Karasahin, 2021).** Unfortunately, there are limited previous research studies that were conducted at Mansoura University to equip pre-eclamptic women with adequate self-care practices. Therefore, this study was conducted.

Aim of the study

The present study aimed to investigate the effect of self-care practices sessions on pre-eclamptic women's pregnancy and labor outcomes.

Research hypothesis

Pre-eclampsia self-care practices sessions will improve women's pregnancy and labor outcomes.

Study design

A quasi-experimental research design (one group pre & post-test) was utilized.

Study setting

The study was conducted at the Antenatal Outpatient Clinics in the New Obstetrics and Gynecology Hospital, Mansoura, and the labor and delivery unit and the inpatient obstetrics and gynecology departments at Mansoura University Hospital, Mansoura, Egypt which is affiliated to the Ministry of Higher Education. The Antenatal Outpatient Clinics work daily from Saturday to Wednesday from 9:00 A.M. to 1:00 P.M. and the day off is Thursday. The labor and delivery unit is an emergency unit that receives and provides care for women during the four stages of labor and for high-risk cases. While the inpatient obstetrics and gynecology departments (numbers 9, 10, 15 & 18) provide antenatal, and postnatal care in addition to gynecological care.

Sample type: A purposive sample was used.

Study sample: The study sample included 96 pre-eclampsia-diagnosed pregnant women who attended the previously mentioned Antenatal Outpatient Clinics and were enrolled in this study when fulfilled the following criteria:

Inclusion criteria:

- Literate women.
- Women having mild pre-eclampsia.
- Age between 18 and 40 years.
- Gestational age (20- 36 weeks).
- Attending an antenatal clinic regularly.

Exclusion criteria:

- Women having chronic medical conditions.
- Women having obstetric complications or convulsions.

Sample size:

Based on data from the literature **Afefy & Kamel (2019),** a study considering the level of significance of 5%, and the power of study of 80%, the sample size can be calculated using the following formula:

$n = [(Z\alpha/2 + Z\beta)2 \times \{2(SD)2\}]/$ (significant difference between the two groups)2

where SD = standard deviation

$Z\alpha/2$: This depends on the level of significance, for 5% this is 1.96

$Z\beta$: This depends on power, for 80% this is 0.84

Therefore, $n= [(1.96 + 0.84)2 \times \{2(37.1)2\}]/ (15.0)2=95.9$

So, based on the above formula, the sample size required is 96.

Tools of data collection: Three tools were utilized for data collection;

Tool I: Structured Interview Schedule: It consists of two parts:

Part (1): General characteristics of the pre-eclamptic women such as age, education, residence, occupation, telephone number, family income, weight, height & BMI.

Part (2): Obstetric history such as gravidity, parity, number of abortions and number of live births, gestational age, inter-pregnancy interval (IPI), family and personal history of pre-eclampsia, multiple pregnancy, previous antenatal care visits, time of the first visit, place of the visit and number of antenatal care visits.

Tool II: Pre-eclampsia Self-Care Practices Questionnaire

It was adapted from **Afefy & Kamel (2019)** to assess self-care practices that were performed by pre-eclamptic women to control and manage pre-eclampsia. It consists of 15 questions for assessing pre-eclamptic women's daily self-care practices such as measuring blood pressure, checking body weight and protein in the urine, following the prescribed medication regimen, consuming the recommended diet for pre-eclampsia, engaging in relaxation activities, practicing exercise, taking adequate rest, monitoring the amount of drinking fluids (8-10 glasses/day), fetal movements, taking enough sleeping periods, etc.

Scoring system:

Each item was assessed on three points Likert scale ranging from 1 to 3 where a score "3" for "always", a score "2" for "sometimes", and a score "1" for "rare". The total score for pre-eclampsia self-care practices equals 45 and it was classified into inadequate and adequate practices as the following; inadequate practice ≤60% (score up to 27) and adequate practice > 60% (score 28-45) **(Afefy & Kamel, 2019).**

Tool III: Pregnancy and Labor Outcome Assessment Sheet

It was adapted from **Essa & Madian (2015)** to assess the pregnancy and labor outcomes of pre-eclamptic women as well as fetal and neonatal outcomes which consists of two parts; **Part (1): Pregnancy and Labor Outcomes assessment** which includes 14 questions for a complete assessment of pregnancy and labor outcomes of the pre-eclamptic women. **Part (2): Fetal and Neonatal assessment** which includes 11 questions to assess fetal and neonatal conditions.

Validity of the study tools:

The validity of the study tools was determined through an extensive review of literature about pre-eclampsia care and was checked by three specialists in the field of woman's health and midwifery nursing and obstetric medicine and the recommended modifications were done then the final form was used for data collection.

Reliability of the study tools:

The tools for data collection were tested in the current study for their reliability (internal consistency) by using Cronbach's alpha test in the statistical package for Social Science (SPSS) version 20 showing high reliability with the values of the Cronbach's alpha (0.889 & 0.876, respectively) for tools (II & III).

Pilot study

A pilot study was directed to 10 pre-eclamptic women (10% of the sample size) who attended the predetermined study setting and met the inclusion criteria to evaluate the clarity and applicability of these tools before the start of data collection as well as to appraise the time required for the answer. Based on the findings of the pilot study, necessary modifications were done in the form of adding and paraphrasing some sentences and questions and the pre-eclamptic women involved in the pilot study were excluded from the analyzed sample.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee at the Faculty of Nursing, Mansoura University to implement the study then an official letter from the Faculty of Nursing, Mansoura University was directed to the manager of the predetermined study setting to obtain the official permission to conduct the study after explaining its aim. Before data collection, written formal consent was obtained from all participants after explaining the nature and purpose of the study. Participation in the study was voluntary and each participant had the right to withdraw from the study at any time. Anonymity, privacy, safety, and confidentiality were assured throughout the whole study. All participant women were informed that the results will be used as a component of the necessary research for the Doctorate study as well as for publication and education.

Study procedure

The data collection was conducted from the beginning of April 2021 to the end of November 2021 through three phases; a preparation phase, an implementation phase, and an evaluation phase.

Preparation phase:

During this phase, official permission to conduct the study was obtained from the manager of the predetermined study setting. The researcher prepared data collection tools by reviewing the national and international related scientific literature about the various aspects of the study using journals, articles, and books, their validity and reliability were checked, required modifications were done and piloting was conducted. The researcher designed a colored manual guide in a simple Arabic language after reviewing Arabic and English pieces of literature.

Implementation phase:

- The researcher attended the previously mentioned study setting three days per week from 9 am to 1 pm until the calculated sample size was obtained. At the first interview; the researcher introduced herself to each pre-eclamptic woman, greeted them, checked their legibility for the study, and made sure that each one met the criteria for the study, then obtained their written consent for participation in the study after explanation of the aim.
  - Before the intervention, the researcher interviewed each woman individually for 15-20 minutes to collect general characteristics and obstetric history by using the Structured Interview Schedule and fill Pre-eclampsia Self-Care Practices pre-test tools by asking questions in Arabic and recording the answers.
  - During the intervention, three educational sessions were done by the researcher for a small group consisting of three to five pregnant women. The sessions included both theoretical and practical parts. The first session demonstrated three self-care practices; accurate blood pressure measurement and maternal body weight measurement, and checking the urine for protein at home. The second session focused on the importance of following the prescribed medications for pre-eclampsia, illustrated a healthy dietary regimen that should be followed by the affected women and its importance, and demonstrated how to self-count fetal movements. The third session illustrated the relaxation activities and their importance and included revision of all content presented in the previous sessions and answering all questions. Each session lasted for 30 to 45 minutes for both demonstration and re-demonstration.
  - The researcher enhanced the correct practices using PowerPoint presentations, practically illustrating these practices, and training them on the correct procedures during the sessions. During the learning sessions, the researcher encouraged each woman to re-demonstrate the illustrated practices. The researcher also gave each woman a copy of an Arabic educational manual guide containing colored pictures that clarified the practices illustrated during the sessions stressing the importance of following these self-care practices daily until the time of delivery and during the postnatal period to prevent adverse pregnancy and labor outcomes for both the mother and her fetus and avoiding any other strategies for managing pre-eclampsia away from the recommended practices to avoid the influence of unrelated variables on the study outcome.
  - After the intervention, the researcher arranged with the pregnant women for a meeting to conduct the

posttest to evaluate the effect of the self-care practices sessions.

The researcher followed up with the women every day by phone to check and ensure their compliance with the self-care practices and to guide them, and also during their antenatal follow-up visits to the Antenatal Outpatients Clinics at the new Obstetrics and Gynecology hospital to determine any obstacles to following the self-care practices.

Evaluation phase:

After 4 weeks of enrollment, the researcher met with each woman at the Antenatal Outpatient Clinics to fill the Pre-eclampsia Self-Care Practices Questionnaire post-test tool by asking questions in Arabic and recording the answers to evaluate the effect of the self-care practices sessions on the pre-eclamptic women's self-care practices. Also, the researcher assessed the women for any change in their general condition as well as for the occurrence of complications during the antenatal follow-up visits and recorded in the Pregnancy Outcome assessment sheet.

Then, the researcher attended the labor and delivery unit and the inpatient obstetrics and gynecology departments at Mansoura University Hospital at the time of delivery to complete the Labor Outcome assessment sheet by assessing the labor outcomes for the women, their fetal condition during labor, and neonatal condition after birth before women's discharge from the hospital to investigate the effect of the self-care practices sessions on pre-eclamptic women's pregnancy and labor outcomes.

Statistical Analysis

All statistical analyses were performed using SPSS version 20.0. Continuous variables were expressed in Mean ±standard deviation (SD) and categorical variables were expressed in number and percentage. The association between variables was tested by the chi-square test (x2). The p-value is the degree of significance where a statistically significant value was considered when p-value ≤ 0.05, a highly significant value when p-value ≤ 0.001 but a non-significant value when p-value > 0.05.

Limitations of the study:

There were two main limitations for conducting this study; the first was no steady place for implementing the self-care practices sessions, as well as difficulties in arranging and scheduling phone calls and the second was a lack of international research studies that examined the study variables.

Results

Table 1 shows that the Mean age ±SD of the studied women was (29.6 ±6.1), (39.6%) of the studied women had secondary education, (65.6%) of them were from rural areas, (77.1%) were working, and (70.8%) had a family income less than 4000 Egyptian pounds.

Table 1. Frequency distribution of the studied women according to their general characteristics

General characteristics	No. (96)	%
Age (years)		
18 – 24	26	**27.1**
25 – 30	23	24.0
31 – 35	24	25.0
36 – 40	23	24.0
Mean ±SD	29.6 ±6.1	
Level of education		
Basic education	24	25.0
Secondary education	38	**39.6**
Higher education	34	35.4
Residence		
Rural	63	**65.6**
Urban	33	34.4
Occupation		
Work	74	**77.1**
Housewife	22	22.9
Family income (EGP)		
<4000	68	**70.8**
4000-6000	28	29.2

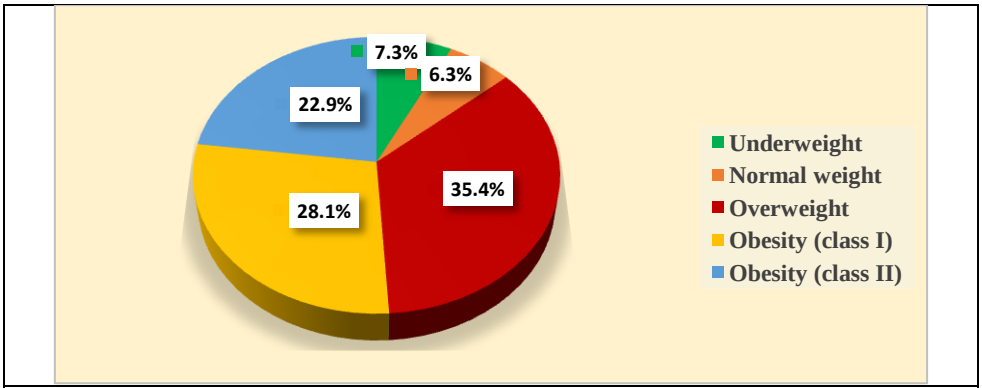

Figure 1. Body Mass Index (BMI) of the studied women (n=96)

Figure 1 shows that (51%) of the studied women were obese and (35.4%) were overweight.

Table 2. Frequency distribution of the studied women according to their obstetric history

Obstetric history	No. (96)	%
Gravidity		
1	26	27.1
2 – 4	60	**62.5**
> 4	10	10.4
Mean ±SD	2.6 ±1.5	
Parity		
0	30	31.3
1	29	30.2
2 – 4	34	**35.4**
> 4	3	3.1
Mean ±SD	1.3 ±1.2	
Number of abortions		
0	70	**72.9**
1	19	19.8
≥ 2	7	7.3
Mean ±SD	0.4 ±0.7	
Number of live births		
0	31	32.3
1	33	**34.4**
≥ 2	32	33.3
Mean ±SD	1.1 ±1.0	
Inter-pregnancy interval (IPI) (years)		
First pregnancy	26	27.1
< 2	29	**30.2**
2 – 6	20	20.8
7 – 10	21	21.9
Family history of pre-eclampsia or high blood pressure		
Yes	23	**24.0**
No	73	76.0
History of pre-eclampsia or high blood pressure		
Yes	28	**29.2**
No	68	70.8
Multiple pregnancy		
Yes	15	**16.3**
No	77	83.7

Table 2 shows that (62.5%) of the studied women were pregnant 2-4 times and (35.4%) of them gave birth 2-4 times. It also displays that (30.2%) of the studied women had an inter-pregnancy interval less than 2 years, (24.0%) and (29.2%) of them respectively had a family and a personal history of pre-eclampsia or high blood pressure. While (72.9%) of them didn't have a history of abortion and (16.3%) had multiple pregnancy.

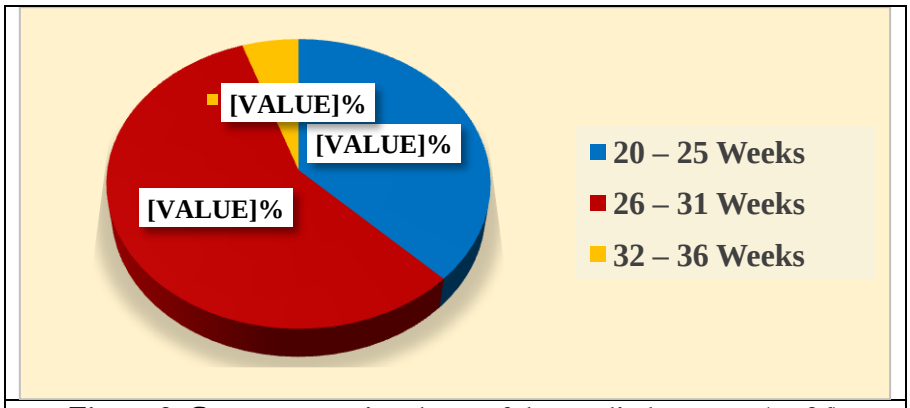

Figure 2. Current gestational age of the studied women (n=96)

Figure 2 displays that (37.5%) of the studied women were at gestational age ranging from 20-25 weeks, (57.3%) were at gestational age ranging from 26-31 weeks, and (5.2%) were at gestational age ranging from 32-36 weeks.

Table 3. Frequency distribution of the studied women according to their previous antenatal follow-up

Item	No. (96)	%
Previous antenatal care visit		
No	4	4.2
Yes	92	**95.8**
Time of the 1st antenatal care visit		
1st trimester	79	**82.3**
2nd trimester	14	14.6
3rd trimester	3	3.1
Place of antenatal follow-up		
Antenatal clinic at MUH	83	86.5
Private clinic	13	13.5
Both	14	**14.6**
Number of antenatal care visits		
< 4	30	31.3
≥ 4	66	**68.8**

Table 3 shows that (95.8%) of the studied women visited the antenatal care clinic previously and (82.3%) of them started the antenatal care follow-up in the 1st trimester. It also describes that (14.6%) of the studied women visited both the antenatal clinic at Mansoura University Hospital (MUH) and a private clinic and (68.8%) of them previously visited the clinic ≥ 4 times.

Table 4. Frequency distribution of the studied women according to their self-care practices pre and post-intervention (n=96)

Items	Pre-intervention			Post-intervention			Significant test	
	Rare	Sometimes	Always	Rare	Sometimes	Always		
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	X^2	P
Daily measuring of blood pressure	61 (63.5)	34 (35.4)	1 (1.0)	1 (1.0)	7 (7.3)	88 (91.7)	160.890	<0.001**
Daily checking urine for protein	81 (84.4)	15 (15.6)	0 (0.0)	4 (4.2)	7 (7.3)	85 (88.5)	157.662	<0.001**
Daily weight checking	74 (77.1)	18 (18.8)	4 (4.2)	2 (2.1)	8 (8.3)	86 (89.6)	146.768	<0.001**
Following the prescribed medication regimen	26 (27.1)	23 (24.0)	47 (49.0)	1 (1.0)	10 (10.4)	85 (88.5)	39.209	<0.001**
Consuming the recommended diet for preeclampsia	44 (45.8)	41 (42.7)	11 (11.5)	0 (0.0)	6 (6.3)	90 (93.8)	131.856	<0.001**
Engaging in relaxation activities	43 (44.8)	44 (45.8)	9 (9.4)	0 (0.0)	2 (2.1)	94 (97.9)	151.493	<0.001**
Practicing exercise daily	77 (80.2)	14 (14.6)	5 (5.2)	0 (0.0)	1 (1.0)	**95 (99.0)**	169.266	<0.001**
Taking a period of rest daily	44 (45.8)	21 (21.9)	31 (32.3)	0 (0.0)	0 (0.0)	**96 (100.0)**	98.268	<0.001**
Lifting legs to the top slightly when lying down or sitting after standing for a long time	48 (50.0)	43 (44.8)	5 (5.2)	0 (0.0)	1 (1.0)	**95 (99.0)**	169.090	<0.001**
Staying away from stressful work	38 (39.6)	35 (36.5)	23 (24.0)	1 (1.0)	3(3.1)	92 (95.8)	103.449	<0.001**
Avoid carrying heavyweights	43 (44.8)	18 (18.8)	35 (36.5)	0 (0.0)	2 (2.1)	94 (97.9)	82.784	<0.001**
Staying away from crowded places	45 (46.9)	27 (28.1)	24 (25.0)	1 (1.0)	3(3.1)	92 (95.8)	101.149	<0.001**
Monitoring amount of fluid daily (8-10 glasses/day)	51 (53.1)	41 (42.7)	4 (4.2)	1 (1.0)	1 (1.0)	94 (97.9)	168.825	<0.001**
Monitoring fetal movement daily	45 (46.9)	21 (21.9)	30 (31.3)	0 (0.0)	1 (1.0)	**95 (99.0)**	96.981	<0.001**
Taking enough sleep (8 hours or more per day)	46 (47.9)	32 (33.3)	18 (18.8)	0 (0.0)	1 (1.0)	**95 (99.0)**	127.590	<0.001**

Table 4 shows that there was a highly statistically significant improvement in all items of pre-eclampsia self-care practices post-intervention (p <0.001) where the highest percentages (99% & 100%) were observed with always daily exercise practicing, taking a period of rest, lifting legs to the top slightly when lying down after standing for a long time, monitoring fetal movements, and taking enough sleep for 8 hours or more per day.

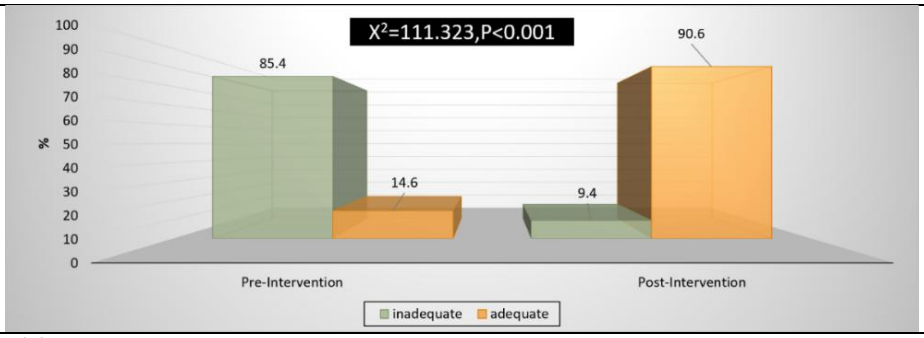

Figure 3. Total pre-eclampsia self-care practices score of the studied women pre and post-intervention (n=96)

Figure 3 reveals that (85.4%) of the studied women had inadequate self-care practices for pre-eclampsia pre-intervention which decreased to (9.4%) post-intervention while (14.6%) of the studied women had adequate self-care practices pre-intervention which increased to (90.6%) post-intervention with a highly statistically significant difference (p <0.001).

Table 5. Frequency distribution of the studied women according to their pregnancy outcomes		
Items	**No. (96)**	**%**
Maternal general condition		
Stable	80	83.3
Unstable	16	**16.7**
Symptoms for unstable women (n=16) #		
Severe headache	10	**62.5**
Dizziness	9	**56.3**
Difficult breathing	13	**81.3**
Oliguria	4	25.0
Epigastric pain	8	**50.0**
Persistent nausea or vomiting	3	18.8
Duration of pregnancy		
< 37 weeks	30	**31.3**
37 – 41 weeks	66	68.8
Time of rupture of fetal membranes (ROM)		
No rupture of membranes until the time of delivery	63	65.6
Preterm premature rupture of membranes	7	**7.3**
Premature rupture of membranes	16	16.7
Rupture of membranes after the labor onset	10	10.4
Occurrence of maternal complications during pregnancy		
Yes	16	**16.7**
No	80	83.3
Type of complications (n=16) #		
Severe pre-eclampsia	10	**62.5**
Abruptio placenta	8	**50.0**

 # More than one answer

Table 5 reveals that (16.7%) of the studied women had unstable general condition during pregnancy and among them, (81.3%) had difficulty breathing, (62.5%) had severe headache, (56.3%) had dizziness, and (50.0%) had epigastric pain. It also shows that (31.3%) of the studied women had a pre-term birth and (7.3%) had PPROM. In addition, (16.7%) of the studied women had antenatal complications such as severe pre-eclampsia for 10 women and placental abruption for 8 women.

Table 6. Frequency distribution of the studied women according to their labor outcomes		
Items	**No. (96)**	**%**
Maternal distress during labor		
Absent	83	86.5
Present	13	**13.5**
Mode of delivery		
Vaginal delivery	22	22.9
Cesarean delivery	74	**77.1**
Onset of labor (n=22)		
Spontaneous	16	72.7
Induced	6	**27.3**
Reason for cesarean delivery (n=74) #		
Fetal distress	7	**9.5**
Inability to control hypertension	15	**20.3**
Cephalopelvic disproportion	21	28.4
Failure of labor induction	33	44.6
Occurrence of maternal complications during & after childbirth		
Yes	12	**12.5**
No	84	87.5
Type of complications (n=12) #		
Severe pre-eclampsia	7	58.3
Eclampsia	3	25.0
Postpartum hemorrhage	5	41.7
Admission to the intensive care unit	11	91.7

 # More than one answer

Table 6 shows that (13.5%) of the studied women had maternal distress during labor, (77.1%) experienced cesarean delivery and the cause was the inability to control hypertension for (20.3%) of the studied women. It also shows that labor was induced for (27.3%) of the women who delivered vaginally, (12.5%) of the studied women experienced complications during & after childbirth which were severe pre-eclampsia for 7 women, eclampsia for 3 women, postpartum hemorrhage for 5 women, and ICU admission for 11 women.

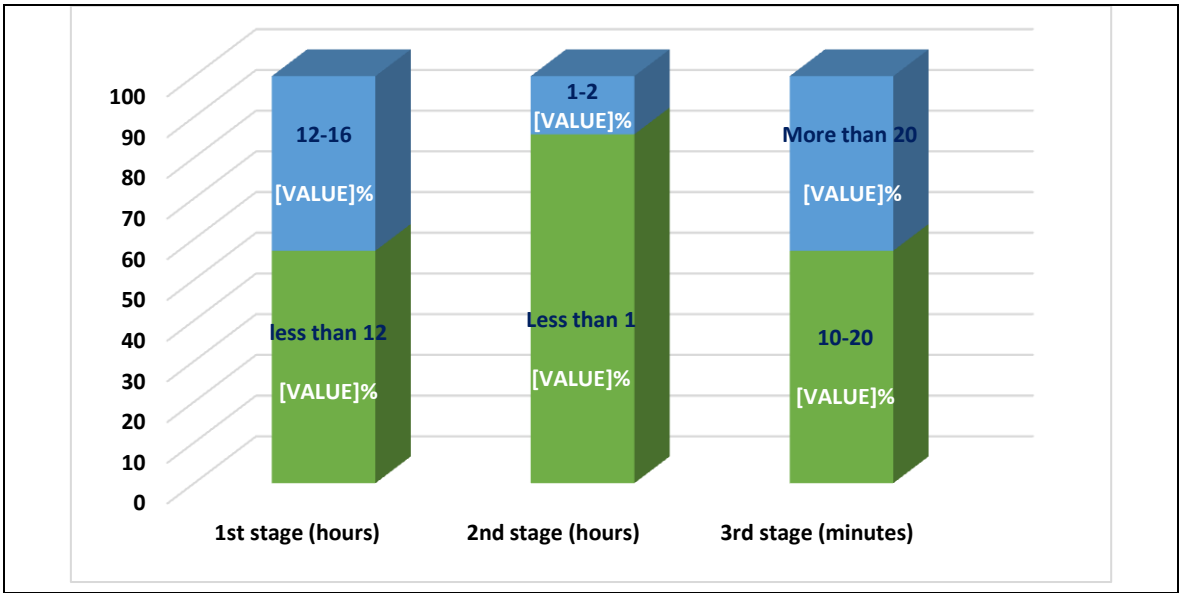

Figure 4. Duration of labor stages for the studied women (primiparous) (n=7)

Figure 4 illustrates that (57.1%) of the studied primiparous women had a duration of <12 hours for the 1st stage of labor, (85.7%) of them had <1 hour for the 2nd stage and (57.1%) had 10 – 20 minutes for the 3rd stage of labor.

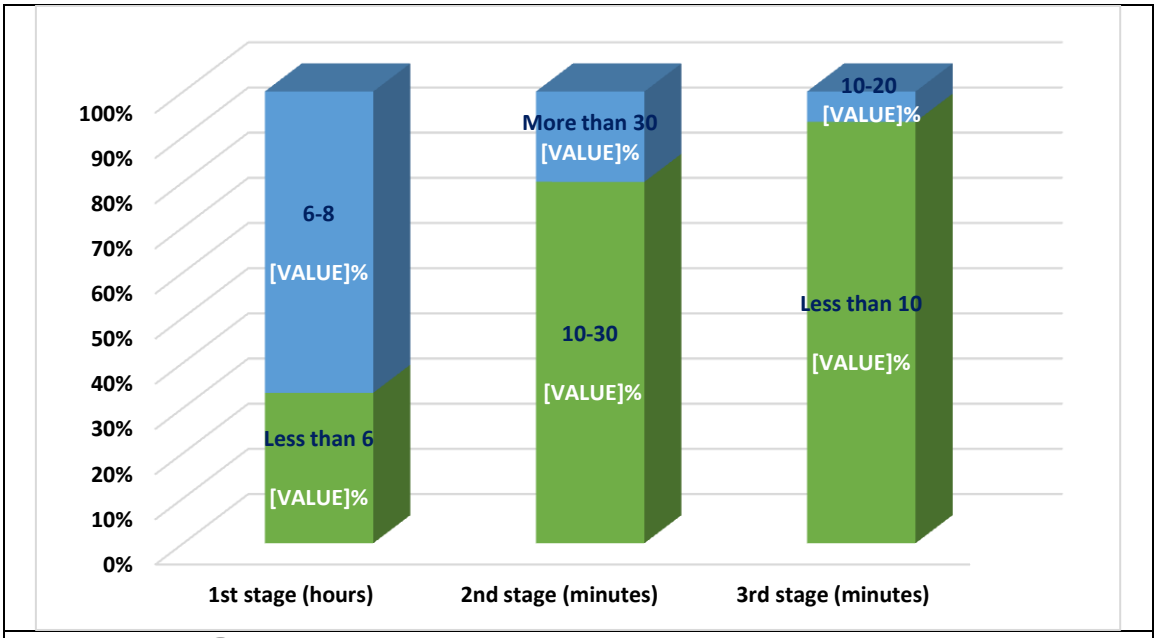

Figure 5. Duration of labor stages for the studied women (multiparous) (n=15)

Figure 5 presents that (66.7%) of the studied multiparous women had a duration of 6-8 hours for the 1st stage of labor, (80.0%) of them had 10-30 minutes for the 2nd stage, and (93.3%) had <10 minutes for the 3rd stage of labor.

Table 7. Frequency distribution of the studied women according to their fetal and neonatal outcomes		
Items	**No. (96)**	**%**
Fetal and neonatal status		
Live birth	92	95.8
Stillbirth	4	**4.2**
Fetal heart rate (FHR) during labor (beats / min) (n=92)		
120 – 160	78	84.8
> 160	14	**15.2**
Fetal distress (n=92)		
Absent	72	78.3
Present	20	**21.7**
Neonate need for oxygen (n=92)		
Yes	22	**23.9**
No	70	76.1
Birth weight (gm) (n=92)		
<1500	8	**8.7**
1500 – 2400	19	20.7
≥ 2500	65	70.7
Neonatal weight adequacy to gestational age (n=92)		
Small for gestational age (SGA)	4	**4.3**
Adequate for gestational age (ADA)	88	95.7
Neonatal admission to the ICU (n=92)		
Yes	16	**17.4**
No	76	82.6
Neonatal complications (n=92)		
No	87	94.6
Yes	5	**5.4**

Table 7 shows that (4.2%) of the studied women had a stillbirth, (15.2%) had FHR of >160 b/m, and (21.7%) had fetal distress. Also, (8.7%) of the studied women's neonates had a birth weight of <1500 gm, and (4.3%) had a small weight for gestational age. Additionally, this table clarifies that (23.9%) of the studied women's neonates needed oxygen, (17.4%) of them had been admitted to the ICU, and (5.4%) experienced complications.

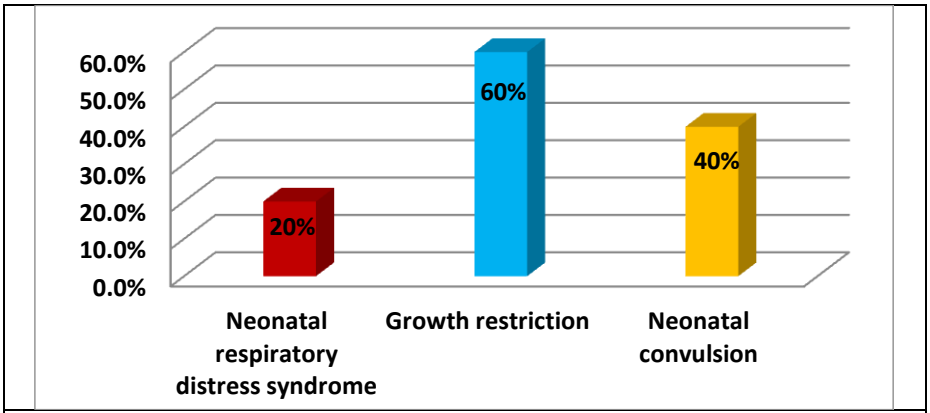

Figure 6. Neonatal complications for the studied women (n=5) #

 # More than one answer

Figure 6 shows that (60%) of the studied women's neonates who experienced complications had growth restriction, (40%) had neonatal convulsion, and (20%) had neonatal respiratory distress syndrome (NRDS).

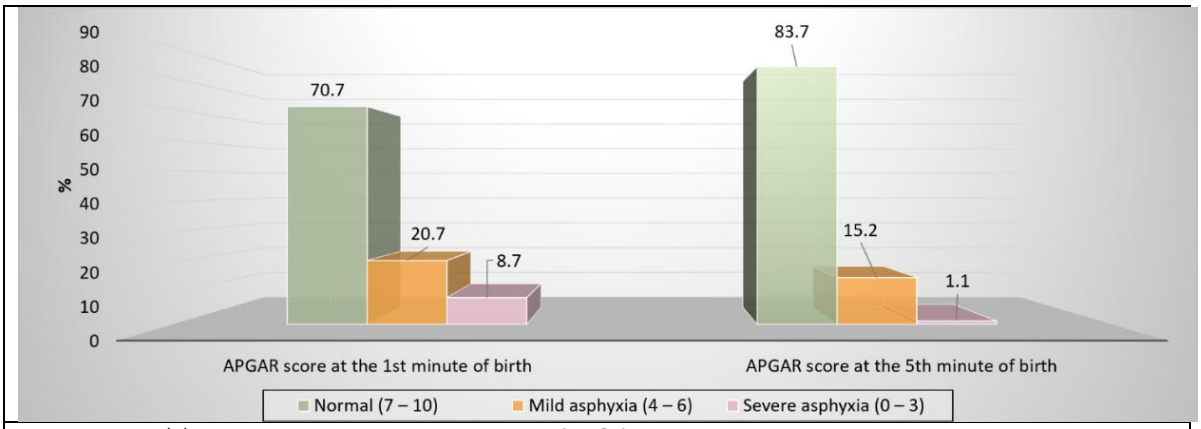

Figure 7. The studied women's neonatal APGAR scores at the 1st and 5th minutes of birth (n=92)

Figure 7 shows that (8.7%) of the studied women's neonates had severe asphyxia at the 1st minute of birth which decreased to (1.1%) at the 5th minute of birth.

Discussion

The present study aimed to evaluate the effect of self-care practices sessions on pre-eclamptic women's pregnancy and labor outcomes. Such study findings evidenced that the studied women experienced positive pregnancy and labor outcomes as well as positive fetal and neonatal outcomes after attending the self-care practices sessions. So, the study hypothesis was supported by the study findings.

Firstly, the present study investigated the women's self-care practices for pre-eclampsia at the first interview and the end of 4 weeks after attending the self-care practices sessions and revealed that the majority of the studied women had inadequate pre-eclampsia self-care practices pre-intervention which improved to adequate practices post-intervention for most of them with a highly statistically significant difference between the pre and post-intervention total pre-eclampsia self-care practices scores. So, the hypothesis "Women suffering from pre-eclampsia who will attend the self-care practices sessions have good pre-eclampsia self-care practices post-intervention in comparison with pre-intervention", was enforced.

Parallel to the present study findings, a study conducted by **Afefy & Kamel (2019)** evaluated the effect of an educational module on knowledge and self-care practice and revealed that the majority of women had inadequate self-care practice level before the intervention, while most of them acquired adequate self-care practice post-intervention and 4 weeks follow-up with statistical significance differences. Also, these study findings were in the same line with the results of **Elagamy, et al. (2021)** who conducted a study that evaluated the effect of nursing intervention guided by PRECEDE model on knowledge and practice of preventive behavior of high-risk pregnant women regarding pre-eclampsia and revealed that most of the pregnant women had bad practices toward pre-eclampsia prevention pre-intervention which improved to good practices one-month post-intervention for most of them and the difference was statistical significance. The agreement between the present study findings and other studies' results is often due to a lack of awareness in Egypt of the great role of self-care in pre-eclampsia control which leads to a decrease in the amount of information and the number of illustrated self-care practices that are provided by the healthcare providers to the affected women in addition to the effectiveness of the learning sessions in helping women to acquire and improve their practices for self-care.

Contrarily, **Hussian & AL- Saffar (2016)** conducted a study to assess self-care management of pregnancy-induced hypertension for pregnant women attending primary healthcare centers in Kirkuk city and to find out the relationship between self-care management of pregnancy-induced hypertension and some socio-demographic and they reported that the level of pregnant women's self-care management toward pregnancy-induced hypertension was moderate. The disagreement between the results may be because pre-eclamptic women in Kirkuk city receive some medical attention and attend some educational sessions that help them to acquire the proper self-care practices.

The present study results showed that there was a highly statistically significant improvement in all items of pre-eclampsia self-care practices post-intervention where the highest two percentages were observed with always daily exercise practicing, taking a period of rest, lifting legs to the top slightly when lying down after standing for a long time, monitoring fetal movements, and taking enough sleep for 8 hours or more.

The first part of these findings was in the same line with the results of **Ali, Abdraboo, A bdelati & Shalaby (2021)** which evaluated the effect of an educational program on modifying lifestyle among pregnant women with mild pre-eclampsia and showed that there was a statistical significant improvement in the lifestyle and self-care practices after conducting the educational program in most items of the lifestyle healthy habits.

Also, similar to the present study findings, the study conducted by **Afefy & Kamel (2019)** revealed that there were statistically significant changes in all pre-eclampsia self-care practice items from the pre-intervention scores to post-intervention scores and 4 weeks follow-up and the highest two percentages were observed at the 4 weeks follow-up with always daily monitoring fetal movements and taking enough sleep for 8 hours or more. This agreement between the present study results and the other studies' findings can be attributed to the keenness of all mothers on their babies and their fear of adverse pregnancy outcomes which helped them to adhere to the illustrated self-care practices.

While, the present study findings were in disagreement with a study conducted by **EL-Sayed, Sarhan & Abdel-Mordy (2020)** they investigated the effect of implementing a continuous care model on health-related behaviors and quality of life among women with pre-eclampsia which revealed that although after implementing the continuous care model, the mean scores of health-related behaviors in the study group were significantly higher than in the control group, the highest two percentages were observed in the items of drinking 8 to 10 glasses of water daily and measuring blood pressure daily. The disagreement between this study's results and the present study's findings may be due to condensing the information that is provided in the educational sessions that were conducted in the previously mentioned study.

Concerning maternal pregnancy and labor outcomes, the present study revealed that more than two-thirds of the studied women had a full-term birth, the majority had a stable general condition during pregnancy without maternal complications before, during, and after childbirth, and didn't experience maternal distress during labor, and most of them didn't have PPROM. So, the hypothesis of "Women suffering from pre-eclampsia will experience positive maternal pregnancy and labor outcomes after attending the self-care practices sessions", was enforced.

Parallel to the present study findings, the study conducted by **Elsaid, Ahmed, El-Abedin & Elkhayat (2021)** evaluated the effect of the teaching program on pregnancy outcomes among primipara women suffering from pregnancy-induced hypertension and found that the majority of the studied women had no complications and that none of them were admitted to the intensive care unit (ICU) demonstrating positive maternal outcomes after implementing the health teaching program.

Also, in light of the present study results, **Essa & Madian (2015)** conducted a study to identify risk factors and pregnancy outcomes among pregnant women with pre-eclampsia which reported similar results that the majority of the studied women didn't experience maternal distress during labor nor maternal complications.

Regarding the fetal and neonatal outcomes, the present study revealed that most of the studied women's babies were live birth, had an adequate weight to the gestational age, and didn't have neonatal complications, more than three-quarters didn't have fetal distress during labor, didn't need for oxygen, and the majority had normal APGAR scores at 5th minute of birth and hadn't been admitted to the ICU. So, the hypothesis of "Women suffering from pre-eclampsia will experience positive fetal and neonatal outcomes after attending the self-care practices sessions", was enforced.

These study results agreed with **Ali, Abdraboo, Shalaby & Abdelati (2022)** who examined the effect of lifestyle modification guidelines on maternal and fetal outcomes among pregnant women with mild pre-eclampsia and showed that there were statistically significant differences concerning NICU admission, delivery at term, birth weight, and Apgar scores between the study and control groups concluding that decreasing the rate of fetal complications of pre-eclampsia after the intervention.

Also, these study results were in the same line with the results **Elsaid, et al. (2021)** who found that the majority of the fetuses were liveborn after a full-term, had normal birth weight, normal birth APGAR score at the first and fifth minutes, and hadn't been admitted to the intensive care unit illustrating positive neonatal outcomes after implementation of the health teaching program.

Similarly, **Alnuaimi, Abuidhail & Ismail (2020)** examined the effects of an interventional program about pre-eclampsia on high-risk pre-eclampsia Jordanian women's awareness and pregnancy outcomes, and found a significant difference between the intervention and the control group in terms of Apgar scores at 1st min and 5th min and Mean diastolic BP after conducting the education program and concluded that pre-eclampsia educational program is effective in improving some pregnancy and neonatal outcomes.

This agreement between the present study findings and the other studies' results concerning the positive pregnancy, labor, and fetal and neonatal outcomes can be attributed to the effectiveness of the educational sessions in empowering the women's abilities for self-care which facilitated continuing the health care and improved the management of pre-eclampsia which led to decreasing the complications of pre-eclampsia and enhancing the positive outcomes for both the women and their babies.

While the present study results were in contrast with **Jacques, Yolaine, Alphonse, Mondoukpè & Edgard-Marius (2021)** who explored the outcomes of pregnancy and associated factors in hypertensive pregnant women in Comè district hospital which revealed that the pregnancy outcome was highly unfavorable in more than one-third of the studied women and the recorded adverse maternal outcomes were postpartum death and hemorrhage whereas the adverse fetal issues were prematurity, low birth weight, low Apgar scores, stillbirth, and death. The contradiction between the studies' results may be due to the nonadherence of the affected women to the proper self-care practices which led to poor control of the disease process and consequently negative maternal and neonatal outcomes.

Conclusion

Based on the results of the present study, it was concluded that implementing self-care practices sessions is effective in improving pre-eclamptic women's pregnancy and labor outcomes.

Recommendations

In light of the present study results, the following can be recommended:

- Pre-eclampsia self-care practices sessions should be an integral part of the routine antenatal care provided to the diagnosed women to raise their awareness regarding effective self-care to improve pregnancy and labor outcomes.
- A manual pre-eclampsia self-care practices guide should be provided to all pre-eclampsia-diagnosed pregnant women at the antenatal care clinics and maternity hospitals to facilitate the self-care working for better pregnancy and labor outcomes.

Further research studies need to be implemented to:

- Assess obstacles or clinical problems facing the health care providers in the implementation of pre-eclampsia self-care practices sessions in different obstetric settings.
- Examine the effect of implementing self-care practices sessions on pregnancy and labor outcomes for other pregnancy-related complications.

Acknowledgment

I would like to express my sincere appreciation and deep gratitude to all the studied women for their participation that helped me to complete this work.

Conflict of Interests

The authors declare that there is no conflict of interest regarding this study.

References

Afefy, N. A. E. & Kamel, A. D. (2019). Effect of an Educational Module on the Knowledge and Self-Care of Women suffering from Pre-eclampsia. IOSR Journal of Nursing and Health Science (IOSR-JNHS), 8(2), e33-42.

Ali, S.E.R., Abdraboo, R.A.M., Abdelati, I.H. & Shalaby, N.S. (2021). Effect of an Educational Program on Modifying Lifestyle among Pregnant Women with Mild Preeclampsia. Scholars International Journal of Obstetrics and Gynecology (Sch Int J Obstet Gynec), 4(8): 316-320. DOI: 10.36348/sijog.2021.v04i08.003.

Ali, S.E.R., Abdraboo, R.A.M., Shalaby, N.S. & Abdelati, I.H. (2022). EFFECT OF LIFESTYLE MODIFICATION GUIDELINES ON MATERNAL AND FETAL OUTCOMES AMONG PREGNANT WOMEN WITH MILD PREECLAMPSIA. Port Said Scientific Journal of Nursing, 9 (1). Page 261-282. DOI: 10.21608/PSSJN.2022.82002.1118.

Alnuaimi, K., Abuidhail, J. & Ismail, H. (2020). The effects of an educational programme about preeclampsia on women's awareness: a randomized control trial. International Nursing Review, 67, 501–511.

Ameen, R.A.E., Hany, A. M. M. & Ali, A. A. (2022). Prevalence rate and risk factors for preeclampsia and eclampsia among pregnant women attending Qena University Hospital During COVID-19 pandemic. SVU-International Journal of Medical Sciences. 6 (1), pp: 29-37.

Coppage, K. & Sibai, B. (2022). Preeclampsia and Eclampsia. Global Library of Women's Medicine's (GLOWM). (ISSN: 1756-2228); DOI 10.3843/GLOWM.10158. Available at; https://www.glowm.com/section-view/heading/Preeclampsia%20and%20Eclampsia/item/158#.Y2bX0XZBzIV, Last accessed on; 5 November 2022 at 11:39 Pm.

Elagamy, M.A.E.E., Sabbour, M.E.E.H., Ali, F.K.Y., Ahmed, S.E. & Shahin M.A. (2021). Effect of Nursing Intervention Guided by PRECEDE Model on Knowledge and Practice of Preventive Behavior of High-Risk Pregnant Women regarding Preeclampsia. Egyptian Journal of Health Care, 12(2), 1298-1314. doi: 10.21608/ejhc.2021.179134.

Elsaid, F. M., Ahmed, M. H., El- Abedin, M. Z. & Elkhayat, I. A. (2021). Effect of Implementation of Teaching Program on Pregnancy Outcome among Primipara Women Suffering from Pregnancy Induced Hypertension. Tanta Scientific Nursing Journal, 21(2). ISSN 2735 – 5519.

EL-Sayed, H.A., Sarhan, A.E. & Abdel-Mordy, M. A. (2020). Effect of Implementing Continuous Care Model on Health-Related Behaviors and Quality of Life among Women with Preeclampsia. Egyptian Journal of Health Care, EJHC, 11 (4). Pp 726-742.

Essa, R. & Madian, A. (2015). Risk Factors and Pregnancy Outcomes Among Pregnant Women with Pre-Eclampsia. Assiut Scientific Nursing Journal, 3(6), 1-14. doi: 10.21608/asnj.2015.59770.

Gholami, K., Norouzkhani, N., Kargar, M., Ghasemirad, H., Ashtiani, AJ., Kiani, S., Sajedi Far, M., Dianati, M., Salimi, Y., Khalaji, A., Honari, S. & Deravi, N. (2022). Impact of Educational Interventions on Knowledge About Hypertensive Disorders of Pregnancy Among Pregnant Women: A Systematic Review. Front Cardiovasc Med. 20;9:886679. doi: 10.3389/fcvm.2022.886679. PMID: 35795374; PMCID: PMC9252511.

Haile, T. G. et al., (2021). "Determinants of Preeclampsia among Women Attending Delivery Services in Public Hospitals of Central Tigray, Northern Ethiopia: A Case-Control Study", Journal of Pregnancy, vol. 2021, Article ID 4654828, 8 pages, 2021. https://doi.org/10.1155/2021/4654828.

Hussian, M.H. & AL- Saffar, F.A.A. (2016). Self-Care Management of Pregnancy Induced Hypertension for Pregnant Women Attending Primary Health Care Centers at Kirkuk City. KUFA Journal for Nursing Sciences, 6 (2).

Jacques, S., Yolaine, G.A., Alphonse, K., Mondoukpè, T. & Edgard-Marius, O. (2021). Factors Associated with Pregnancy Outcomes in Hypertensive Pregnant Women in a District Hospital in Benin. Open Journal of Epidemiology, 11, 420-432. https://doi.org/10.4236/ojepi.2021.114034.

Karrar, SA. & Hong, PL. (2022). Preeclampsia. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK570611/.

Lisonkova, S., Bone, J. N., Muraca, G. M., Razaz, N., Wang, L. Q., Sabr, Y., Boutin, A., Mayer, C. & Joseph, K.S. (2021). Incidence and risk factors for severe preeclampsia, hemolysis, elevated liver enzymes, low platelet count syndrome, and eclampsia at preterm and term gestation: a population-based study. American Journal of Obstetrics & Gynecology AJOG, DOI:https://doi.org/10.1016/j.ajog.2021.04.261.

Longo, D.L. (2022). Preeclampsia. N Engl J Med;386:1817-32.DOI: 10.1056/NEJMra2109523.

Matyas, M., Hasmasanu, M., Silaghi, C.N., Samasca, G., Lupan, I., Orsolya, K. & Zaharie, G. (2022). Early Preeclampsia Effect on Preterm Newborns Outcome. J. Clin. Med. 11, 452. https://doi.org/10.3390/jcm11020452.

Mou, A.D., Barman, Z., Hasan, M. et al. (2021). Prevalence of preeclampsia and the associated risk factors among pregnant women in Bangladesh. Sci Rep 11, 21339. https://doi.org/10.1038/s41598-021-00839-w.

Moulaei, Kh., Bahaadinbeigy, K., Ghaffaripour, Z. & Ghaemi, MM. (2021). The Design and Evaluation of a Mobile-based Application to Facilitate Self-care for Pregnant Women with Preeclampsia during COVID-19 Prevalence. J Biomed Phys Eng, 11(4):551-560. doi: 10.31661/jbpe. v0i0.2103-1294.

Ndwiga, C., Odwe, G., Pooja, S., Ogutu, O., Osoti, A. E. & Warren, C. (2020). Clinical presentation and outcomes of pre-eclampsia and eclampsia at a national hospital, Kenya: A retrospective cohort study. PLoS ONE 15(6): e0233323. https://doi.org/ 10.1371/journal.pone.0233323.

Rasouli, M., Pourheidari, M. & Gardesh, Z. H. (2019). Effect of Self-care Before and During Pregnancy to Prevention and Control Preeclampsia in High-risk Women. International Journal of Preventive Medicine, 10(21).

Sole, K.B., Staff, A.C., Räisänen, S. & Laine, K. (2022). A substantial decrease in preeclampsia prevalence and risk over two decades: A population-based study of 1,153,227 deliveries in Norway, Pregnancy Hypertension, 28, Pages 21-27, ISSN 2210-7789, https://doi.org/10.1016/j.preghy.2022.02.001. (https://www.sciencedirect.com/science/article/pii/S2210778922000150).

Tinawi, M. (2020). Hypertension in Pregnancy. Arch Intern Med Res., 3(1), 010-017.

Uğurlu, M., Yavan, T. & Karasahin, K. E. (2021). The Effect of an Education and Counseling Program on Maternal/Neonatal Outcomes in Pregnant Women at Risk of Preeclampsia. Puerto Rico health sciences journal, 40(3):127-135.

Veiga, E. C., Rocha, P. R., Caviola, L. L., Cardoso, V. C., Costa, F., Saraiva, M. C., Barbieri, M. A., Bettiol, H. & Cavalli, R. C. (2021). Previous preeclampsia and its association with the future development of cardiovascular diseases: a systematic review and meta-analysis. Clinics, 76. https://doi.org/10.6061/clinics/2021/e1999.

Yang. Y., Le Ray, I., Zhu, J., Zhang, J., Hua, J. & Reilly M. (2021). Preeclampsia Prevalence, Risk Factors, and Pregnancy Outcomes in Sweden and China. JAMA Netw Open, 4(5), e218401.doi:10.1001/jamanetworkopen.2021.8401.